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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,618	01/04/2001	Rainer Pflug	PFLUG	4677

7590 06/12/2002

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EXAMINER
SY, MARIANO ONG

ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 06/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/754,618	PFLUG ET AL.	
	Examiner	Art Unit	
	Mariano Sy	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 May 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. The amendment filed on May 20, 2002 has been received.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niina (U.S. Patent Number 5,921,684) in view of Burkhardt (U.S. Patent Number 3,737,204).

Re-claim 1 Niina discloses, as shown in fig. 5, a thrust ball bearing 14 comprising first 14a and second 14b circular ring shaped bearing disks moving eccentrically to one

another, and bearing balls 14c for rolling along circular tracks 11a, 13a. However Niina fails to disclose said first and second bearing disks made from a through-hardenable ferrous material. Burkhardt teaches, as disclose in Abstract, a roller bearing having an outer race made of through-hardening steel AISI 52100. It would have been obvious to one of ordinary skill in the art to have merely utilized the known through-hardening steel for use on the bearing disks of Niina, in view of the teaching of Burkhardt, in order to withstand heavier loads and extend the usage and life of the bearing.

Re-claims 2, 3, 8, and 9 Niina was silent to show wherein the bearing disk are made of an unalloyed, low-alloy or high-alloy ferrous material and made of a steel selected from the group consisting of C 45, C 55, C67, C 75. Burkhardt teaches bearing disk made of high alloy. The different types of alloy material used for bearing disks are already well known in the art. It would have been obvious to one of ordinary skill in the art to have use the wide array of existing alloy material to be used in the bearing disks, depending upon the size, load, and environment being applied.

Re-claims 4, 5, 10, and 11 Niina discloses wherein the bearing disks are made by a non-cutting shaping process, see col. 1 lines 49-53. However Niina was silent to show wherein the shaping process is carried out at a shaping speed of < 2 m/min. It would have been obvious to one of ordinary skill in the art to have use a suitable shaping speed depending upon the size of the bearing disks and the type of material used in order to form a smooth raceway surface.

Re-claim 6 Niina discloses, as shown in figure 5, thrust ball bearing for use in a scroll compressor having a housing 13, a revolving scroll member 11 mounted on a

crank pin of a shaft 15a, a stationary scroll member 12, said first bearing disk connected with the revolving scroll member and said second bearing disk securely fixed to the housing, whereby a compressor space P is formed during interaction of the revolving and the stationary scroll member.

Re-claim 7, Niina discloses, as shown in fig. 5, a scroll compressor comprising: a housing 13, a stationary scroll member 12, a revolving scroll member 11, a compression space P, a thrust ball bearing 14 having a first bearing disk 14a, a second bearing disk 14b, and bearing balls 14c. However Niina fails to disclose said first and second bearing disks made from a through-hardenable ferrous material. Burkhardt teaches, as disclose in Abstract, a roller bearing having an outer race made of through-hardening steel AISI 52100. It would have been obvious to one of ordinary skill in the art to have merely utilized the known through-hardening steel for use on the bearing disks of Niina, in view of the teaching of Burkhardt, in order to withstand heavier loads and extend the usage and life of the bearing.

5. Applicant's arguments filed on May 20, 2002 have been fully considered but they are not persuasive.

Examiner maintains the rejection is proper. Niina teaches heat treatment hardending depth on the bearing disks of thrust ball bearing. However Niina fails to disclose wherein the bearing disks can be made from through hardened steel. Burkhardt teaches a roller bearing having an outer race made of through hardened steel. It would have been obvious to one of ordinary skill in the art to have merely utilized the known through-

hardening steel for use on the bearing disks of Niina, in view of the teaching of Burkhardt, in order to withstand heavier loads and extend the usage and life of the bearing. Applicant argued that Niina discloses a thrust ball bearing designed to resist axial loads, while Burkhardt discloses a roller or ball bearing designed to resist radial loads; that axial bearing and radial bearing differ substantially as far as rolling conditions are concerned and cannot simply be compared. Examiner disagree with applicant's arguments since Burkhardt teaches the use of ball or roller bearing wherein thrust bearing and roller bearing are both classify as a type of rolling bearing which have races or disks that can be hardened through different type of process. Volkmuth (U.S. Patent Number 6,203,634 B1) discloses through hardened rolling bearing components which include rings, balls, washers, and generally all parts of a rolling bearing made of through hardened bearing steel, see col. 5, lines 65-67 and col. 6, lines 1-6.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Butterworth et al. (U.S. Patent Number 4,415,318) discloses a rolling thrust bearing for use in a scroll machine.

Volkmuth (U.S. Patent Number 6,203,634 B1) discloses a method for heat-treating steel.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariano Sy whose telephone number is 703-308-3427. The examiner can normally be reached on Mon.-Fri. from 9:00 A.M. to 3:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder, can be reached on (703) 308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

JACK LAVINDER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

M. Sy

June 10, 2002

6/10/02